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ABSTRACT

The state of Virginia, like the rest of the nation, has placed school construction near the top of the political agenda due to rapidly rising enrollments and population shifts. This report presents results from a survey designed to better understand the connection between facilities, learning, and teaching in Virginia. The survey questions reflect the following five areas of concern attributable to facility inadequacies: lost instructional time; reduced effectiveness in learning and teaching; diminished curricular options; school facilities and students with special needs; and student health and safety. Findings reveal that facility inadequacies, either through deterioration, obsolescence, or out-of-date state mandates exacerbated each area of concern. Recommendations are provided pointing to the need for greater state support. (GR)

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WHERE OUR CHILDREN LEARN MATTERS:

A REPORT ON THE VIRGINIA SCHOOL FACILITIES IMPACT STUDY

by

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School construction has risen to the top of the political agenda across the nation. Virginia is no exception. In some parts of the Commonwealth, rapidly increasing enrollments and population shifts have necessitated new schools, extensive additions, and an armada of mobile units. Elsewhere school enrollments are relatively stable, but aging facilities are forcing communities to renovate, retrofit, or replace schools.

The need for new and updated schools for the children of Virginia is not in question. Periodic surveys by the Virginia Department of Education have established beyond a reasonable doubt the range and scope of the need. Still, school construction is expensive, and some people question whether there is any relationship between the quality of school facilities and student achievement.

In an effort to understand better the connection between facilities, on the one hand, and learning and teaching, on the other, the Virginia Association of School Superintendents commissioned the Thomas Jefferson Center for Educational Design to conduct a survey of the Commonwealth's school divisions. Located at the University of Virginia, the Thomas Jefferson Center is a non-

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partisan research and development organization involving associates from the fields of education, architecture, engineering, technology, business, and sociology.

A Study of Impact

While other surveys have concentrated on describing the extent of facilities needs, the Jefferson Center survey focuses on the impact of overcrowded and deteriorating facilities on learning and teaching. Survey questions reflect five areas of concern:

1. Instructional time lost because of problems related to facilities
2. Reduced effectiveness of teaching and learning due to facilities
3. Diminished curricular options
4. Pressure on facilities resulting from state and federal mandates
5. Student health and safety issues related to facilities

In November of 1998 every Superintendent in Virginia received a copy of the Jefferson Center's four-page "School Facilities Impact Survey." Of 133 possible responses, 128 (96%) were returned. The following sections contain the results of the survey and several recommendations for policy makers.

Lost Instructional Time

If research has established any relationship in education, it is that which exists between time and learning. The more time students are exposed to instruction, the more likely they are to learn. It goes without saying that when students are not in school, achievement suffers.

The survey reveals that 36.2% of the 128 school divisions were forced to close one or more schools during the past two years because of problems related to school facilities. Lost time ranged from an early dismissal due to lack of air conditioning to ten days without school because of a heating system failure. Survey responses indicate that at least 96 days of instruction have been lost in Virginia public schools since the beginning of 1997. Schools had to be dismissed early on at least 44 other occasions. In some instances, only one school was involved in a facilities-related closure or early dismissal, but in cases involving lack of air conditioning during extremely warm days, every school in a division had to be closed! Tens of thousands of students were affected.

Virginia school divisions in the past two years have lost more than 38 days of instruction due to lack of air conditioning and have been forced to dismiss school early due to hot weather on more than 40 occasions. These statistics, of course, do not include the warm days when schools remained open, but students and teachers were uncomfortable and unable to function effectively.

The importance of air conditioning becomes even more apparent in the summer. An increasing number of school divisions are running extensive summer programs, particularly for students who have fallen behind their peers or failed statewide tests. To require these students to attend school during hot weather months without air conditioning makes little sense educationally.

Lack of air conditioning is not the only reason for lost instructional time in Virginia, though it was the most frequently mentioned. Problems related to HVAC

(Heating, Ventilation, and Air Condition) systems accounted for 39 days of lost instruction, electrical systems and wiring another 10 days, and water and sewer problems an additional 6 days. Most of the HVAC problems involved boiler failures during winter months. The data do not include the impact of leaking roofs on particular classrooms, since schools typically remain open in the case of isolated leaks.

Reduced Effectiveness

When school is closed, formal learning does not occur. But what about when school is open? Inadequate facilities can exert a sufficiently negative impact to reduce the ability of teachers to teach and students to learn. Nowhere is this impact more apparent than in schools that lack an adequate number of classrooms to support their educational programs.

Insufficient classroom space compelled 53% of the school divisions to increase the numbers of students in at least some classes, thereby countering local and state efforts to improve student achievement by lowering the ratio of students to teachers. Over 40% of the school divisions report having to combine classes, such as Spanish III and Spanish IV, in order to cope with space limitations. Combining classes forces teachers to handle several preparations simultaneously, thereby jeopardizing curriculum coverage and instructional effectiveness. In other cases, inadequate space has meant that two teachers must operate in the same classroom space with different groups of students - at the same time!

In order to deal with limited space, 63% of the school divisions schedule classes for areas not designed for instructional purposes. For example, 34 divisions (27%)

hold classes in auditoriums or on stages; 20 divisions (16%) hold classes in cafeterias; and 20 (16%) divisions hold classes in storage areas and book closets. Other areas used for instruction include hallways, offices, media centers, teacher workrooms, locker rooms, and, in two cases, converted coal bins. In several cases, science labs must meet in rooms without gas or water.

The need for classroom space sometimes means eliminating areas that play an important role in instructional support and school operations. Fifty-six per cent of the school divisions report eliminating important non-instructional areas in order to create more classrooms. Among the areas converted to classrooms are administrative and professional offices (23%), storage rooms (19%), teachers' workrooms (14%). When teachers lack space in which to prepare instructional materials, speech therapists lack private rooms for testing and consultation, and parts of libraries must be used as classrooms, the ability of schools to deliver their instructional programs can be compromised.

Converting existing building space to classrooms is not the only way school divisions in Virginia are coping with the need for more places to teach. Sixty-seven per cent of the school divisions have purchased mobile units and more than 30% are leasing them. Over 3,000 mobile units are scattered over the campuses of the Commonwealth. To point out that mobile units pose challenges for teachers and school officials is to risk understatement. Among the potential problems are the following:

- Wiring mobile units for computers is difficult and expensive.
- Mobile units often lack water and other features that are important for certain courses, such as art, home economics, and science.

- Some students feel stigmatized when they are compelled to spend all or part of the day in mobile units.
- Valuable instructional time can be lost when students must walk back and forth between mobile units and the main school building.
- Walking to and from mobile units creates opportunities for misconduct and discipline problems.
- Keeping expensive equipment such as computers in mobile units poses a security problem.
- Mobile units often are not energy-efficient.

Besides forcing students to learn in unsuitable settings and depriving school employees of space for planning and preparation, squeezing classroom space out of existing facilities can have another, more subtle impact. This impact is best captured in a statement by one of the respondents to the survey:

> Improper facilities for classroom instruction -- such as storage rooms, teacher lounges, auditorium stages, and mobile units -- send a silent message that the students, staff, and programs are not important enough to require additional funds to correct these deficiencies.

Diminished Options

Lack of adequate classroom space limits curricular choices as well as teacher effectiveness. One out of every five divisions (20%) report being forced to cancel or eliminate courses because of space limitations. Among the victims are many vocational education courses and electives.

Even school divisions that succeed in preserving curricular options are still forced to make concessions. Access to certain courses and programs, for example, had to be limited by almost 16% of the reporting divisions. Vocational education courses, once again, were among those most affected by limited space. Other areas where enrollment has been restricted include programs for four-year-olds, alternative

education, advanced placement courses, and computer courses. *It appears that at-risk students and students who are unlikely to attend college often are those for whom curricular choices are curtailed because of inadequate space.*

State and Federal Mandates

When schools are built, they are built to accommodate educational programs that meet existing expectations. Expectations change, however. Nowhere have expectations changed more dramatically than in the area of special education. Many of the space limitations faced by Virginia's schools can be traced to federal legislation regarding the education of special needs students. Almost a quarter century after the passage of Public Law 94-142, some school divisions in Virginia still do not meet building standards for access for students with disabilities.

Currently school divisions are implementing the Virginia Standards of Learning and the Standards of Accreditation. Many survey responses indicate that these new mandates are placing additional strains on existing facilities. One school division enumerated a variety of reasons why state and federal mandates necessitate more space:

- Need to reduce enrollment in K-3 classes to an average of 20 students.
- Need to reduce enrollment in 6-12 English classes to an average of 24 students.
- Need for special education rooms to meet federal and state guidelines.
- Need for tutorial rooms for students requiring reading remediation (Virginia Reading Tutor Program).
- Need for space for additional teachers to provide remedial assistance to students who fail SOL tests.
- More computer labs to help students meet new SOLs related to technology.
- More space for technical labs to accommodate state is desire for student preparation for technical careers.
- Additional class space to accommodate students who are retained as a result of failing SOL tests.

Over 72% of the school divisions indicate that classrooms will have to be increased to meet some or all of these new expectations. One urban division, for example, will need to add 60 classrooms in order to lower teacher-student ratios in K-3 to an average of 20 students. To address Standards of Learning related to laboratory sciences, almost 64% of the school divisions say they will need to increase their number of science labs. Three out of four divisions indicate they must add computers—and space to accommodate them—in order to meet technology-related Standards of Learning.

Both Governor Gilmore and President Clinton have suggested that funds be made available to enable school divisions to hire more teachers. When asked whether some schools in their divisions would be unable to add more teachers unless additional classrooms were constructed, 86% of the respondents agreed. Obviously there is more to expanding the teaching force than recruitment and selection.

Student Health and Safety

Virginia educators care deeply about their students, and they make every effort to ensure their health and safety. Still, 7% of the respondents report that facilities-related problems in the past two years have resulted in injuries to students and student absenteeism. Specific problems range from a student falling through a rotten section of flooring to absences associated with building-based allergies and poor ventilation.

Overcrowding can produce its own set of safety problems, including increased opportunities for misconduct in classes and corridors. Sometimes overcrowding and lack of adequate space lead parents to withdraw their children from school. Seventeen

percent of the school divisions indicate that students have been withdrawn from at least one school because of facilities-related problems.

School Facilities Matter

Based on surveys from 128 out of 133 school divisions in Virginia, it can be concluded that school facilities do matter when it comes to learning and teaching. To ignore or minimize the connections between what students learn and where they learn, in our judgment, would be a serious mistake.

Virginia's educators understand how facilities affect learning and teaching. They are continually assessing building and classroom needs. Unfortunately, they are not always able to secure the funds necessary to improve existing facilities and build new schools. Just under one quarter of the school divisions in our survey report having tried and failed to obtain funds for new construction or renovations during the past two years. A number of school divisions in the Commonwealth clearly require assistance if they are to provide their students with up-to-date, comfortable, and effective learning environments.

The need is best expressed, perhaps, in the words of one Superintendent:

> We have already had to add 26 mobile units to address overcrowding and reduced K-3 class size, and we are still short of space in several areas. Twenty-four of these mobile units are used as regular classrooms; this means that 20% of our regular classroom teachers are now housed in mobile units. Mobile units are not connected to the school's computer network.
>
> None of the schools in the division are air conditioned, and all but one of the boilers are 20 to 30 years old. Wiring and lighting are inadequate for classroom instruction and the use of technology. Students with health problems are frequently affected by the schools

being too hot or cold. Students in mobile units are affected by having to change classes in bad weather. It is also very difficult to schedule summer school and remedial classes in un-air-conditioned classrooms.

Four recommendations derive from the findings of the Jefferson Center's "School Facilities Impact Survey." All but one involve providing state support to help school divisions provide learning environments capable of supporting Virginia's high expectations for students and teachers. Less affluent school divisions should not be placed in the position of having to choose between maintaining or improving school facilities and other essential budget items such as hiring teachers or purchasing instructional supplies.

Recommendation 1: ***Provide state support to help school divisions provide air conditioning for every school.*** Effective learning and teaching is virtually impossible in hot, humid classrooms that lack adequate ventilation. The need for effective classroom learning time has never been greater in Virginia. In addition, summer programs for at-risk students are increasing. Air conditioning is imperative.

Recommendation 2: ***Provide state support to offset the negative consequences of out-of-date and deteriorating facilities.*** No student in Virginia should be compelled to attend schools with inadequate wiring, leaky roofs, outdated boilers, poor lighting, and classrooms that are not designed for effective instruction. No student's safety or health should be jeopardized because of the facilities in which they are required to learn.

Recommendation 3: ***Provide state support to relieve overcrowded conditions in schools***. Overcrowding adversely affects learning in various ways. Access to important courses may have to be limited. In some cases, courses are eliminated entirely because

of limited space. When teachers must teach large numbers of students, the likelihood that individual students will receive the individual attention they need and deserve is greatly reduced. Crowded conditions also spawn behavior problems and disorder.

Recommendation 4: ***Establish high state-wide standards for school facilities.*** It seems only fair that a state that expects high performance from its students and teachers should also hold itself, and its citizens, to a high standard when it comes to support for schools. This support includes providing high quality school facilities to provide young people with every opportunity to take advantage of their public education. What message do we send to Virginia's young people when we demand that they meet rigorous academic standards, but then allow communities to settle for sub-standard school facilities?

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